

# The Effectiveness of Manual Circumlaryngeal Therapy in future elite vocal performers: a Pilot Study

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## Purpose

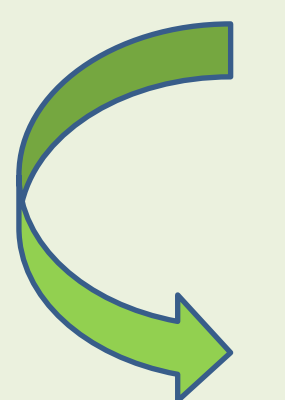
The purpose of this study is to investigate the impact of a single session of Manual Circumlaryngeal Therapy (MCT) on the objective and subjective voice quality of future elite vocal performers (musical students).

## Hypothesis

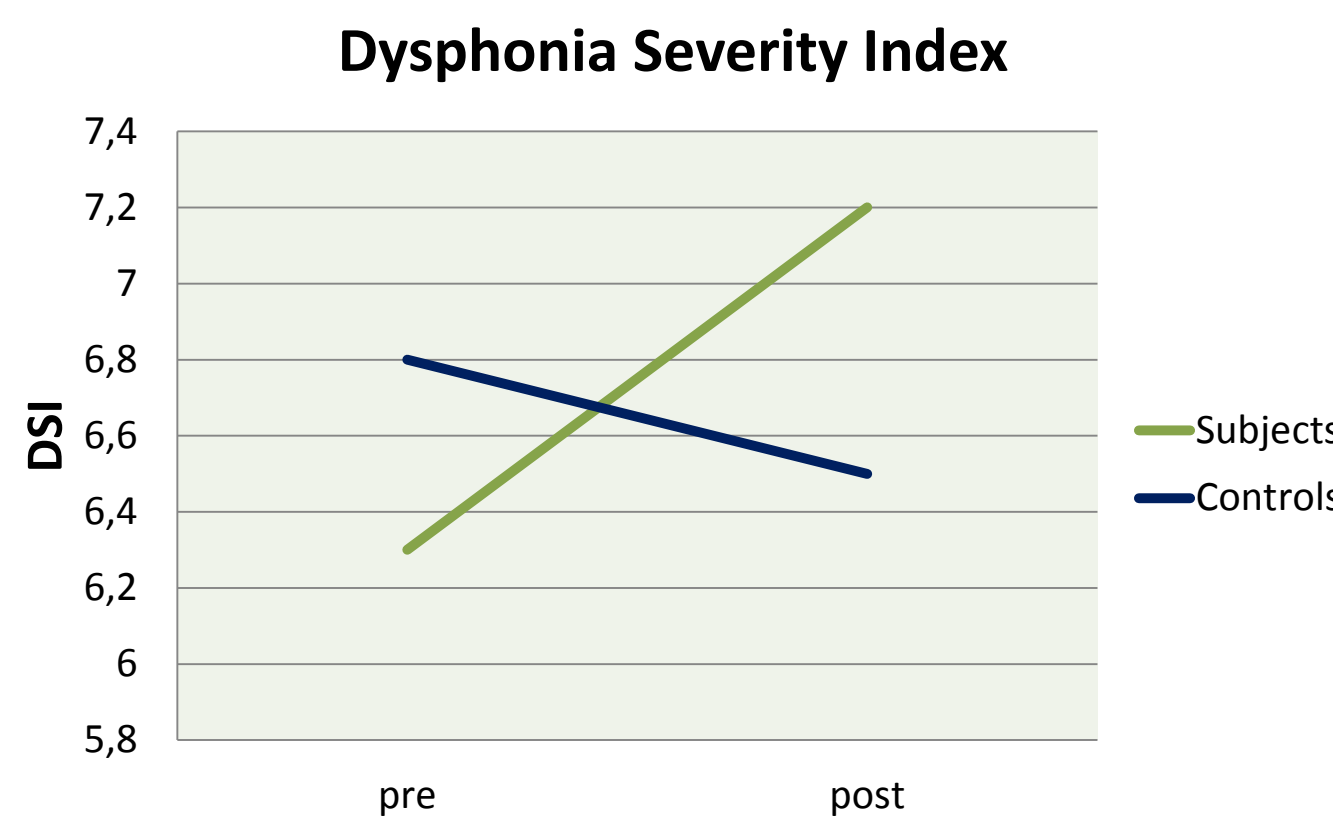
MCT might maximize vocal capacities as a result of a maximal relaxation of the laryngeal and perilaryngeal musculature, and an optimal position of the larynx in the neck. An immediate increase of the vocal quality and vocal performance is hypothesized.

## Voice assessment protocol

- Videostroboscopic evaluation
- Objective measurements
  - Maximum Phonation Time (s)
  - Voice Range Profile
    - Highest, lowest frequency (Hz)
    - Highest, lowest intensity (dB)
  - Acoustic measurements:(Isolated vowel /a:/)
    - Fundamental frequency (Hz)
    - Jitter (%)
    - Shimmer (%)
    - Noise to harmonic ratio



Dysphonia Severity Index



## Future elite vocal performers

- Elite vocal performers
  - Voice users for whom even small vocal difficulty would prevent adequate job performance.
- Future elite vocal performers
  - Poor vocal quality (Timmermans et al., 2002)
- Musical students
  - Combination of singing - acting - dancing
  - High physical and vocal load
  - As they are absolutely depending on their voice quality and vocal capacities for their studies and their future profession, an optimal voice coaching is very important.

## Manual Circumlaryngeal Therapy

- The hyoid bone
  - was encircled with the thumb and index finger, which were worked posteriorly until the tips of the major horns were felt.
- Thyroid cartilage
  - the circular movement procedure was repeated beginning from the thyroid notch and working posteriorly. The posterior borders of the thyroid cartilage, just medial to the sternocleidomastoid muscles, were located and the procedure was repeated.
- Total larynx
  - with the fingers over the superior borders of the thyroid cartilage, the total larynx was worked downward, and moved laterally at the same time.

	Manual Circumlaryngeal Therapy							Vocal Rest						
	pre			post				pre			post			
	median	Pc25	Pc75	median	Pc25	Pc75	p-value	median	Pc25	Pc75	median	Pc25	Pc75	p-value
Aerodynamic measurement														
Maximum phonation time (s)	17	14	24	19	15	25	0.263	19	18	25	18	17	25	0.799
Voice Range Profile														
Lowest intensity (dB)	53	52	56	53	52	54	0.293	53	50	53	54	53	55	0.071
Highest intensity (dB)	111	108	116	109	108	114	0.672	108	104	114	112	110	115	0.107
Lowest frequency (Hz)	117	78	139	124	78	139	1.000	139	78	147	131	78	147	0.581
Highest frequency (Hz)	1175	932	1480	1357	1054	1571	0.310	1397	831	1568	1319	932	1568	0.500
Acoustic measurements														
Fundamental frequency (Hz)	222	167	235	237	113	240	0.612	214	153	219	222	138	239	0.499
jitter (%)	0.7	0.5	1.2	0.8	0.5	0.9	0.327	0.6	0.3	0.9	0.6	0.3	1.1	0.735
shimmer (%)	3.5	3.0	4.0	3.1	2.9	4.5	0.866	3.3	2.3	3.5	3.0	2.6	3.1	0.237
Noise to Harmonic Ratio	0.1	0.1	0.1	0.1	0.1	0.1	0.293	0.1	0.1	0.1	0.1	0.1	0.1	0.498
Dysphonia Severity Index	6.3	5.4	7.3	7.2	6.4	8.4	0.050	6.8	6.0	9.1	6.5	5.1	8.8	0.237

Speaking singing voice		n	%	n	%	n	%	
Quality speaking voice		worse		same		better		
		0/8	0	5/8	62.5	3/8	37.5	
Quality singing voice		0/8	0	3/8	37.5	5/8	62.5	
Speaking		more difficult		same		Easier		
		0/8	0	5/8	62.5	3/8	37.5	
Vocal range		smaller		same		Larger		
		0/8	0	4/8	50	4/8	50	
Any improvement		No		yes				
		2/8	25	6/8	75			
Sensations larynx throat		n	%	n	%	n	%	
Larynx		painful		Open		Same		
		0/8	0	5/8	62.5	3/8	37.5	
Throat		0/8	0	5/8	62.5	3/8	37.5	
Evaluation of MCT		n	%	n	%	n	%	
MCT		painful		not pleasant		no sensations	pleasant	
		1/8	12.5	3/8	37.5	0/8	0	4/8

## Discussion:

- The results of this pilot study prudently suggest that MCT is not only effective in patients with functional voice disorders (MTD), but can also improve vocal capacities in healthy trained voices of future elite vocal performers.
- The results of the control group indicate the absence or a minimal impact of a learning effect of the two successive measurements in these musical students.
- Before performing MCT, clinicians should be aware of the possible sensations experienced by the subjects during the therapy and the possible hazards, particularly in vulnerable subjects. Especially, they should be cognizant of the proximity to the carotid sinus during massage, kneading, and stretching of the perilaryngeal or adjacent musculature.
- Future studies with larger study groups will have to confirm these preliminary results.